UNITED STATES PATENT AND TRADEMARK OFFICE

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WOODCOCK WASHBURN LLP (MICROSOFT CORPORATION)
CIRA CENTRE, 12TH FLOOR
2929 ARCH STREET
PHILADELPHIA, PA 19104-2891

EXAMINER
SYED, FARHAN M

ART UNIT	PAPER NUMBER
2165	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 October 2009*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21 and 23-28* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21 and 23-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-21 and 23-28, filed 26 October 2009, are pending. The Examiner

acknowledges amended claims 1, 11, 21, 23, 27, and 28.

Continued Examination Under 37 CFR 1.114

2.   A request for continued examination under 37 CFR 1.114, including the fee set

forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this

application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 29

October 2009 has been entered.

Response to Remarks/Argument

3.   Applicant's arguments with respect to claims 1-21 and 23-28 have been

considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 1-21 and 23-28 are rejected under 35 U.S.C. 103(a) as being

unpatentable by Ghosh et al (U.S. 2004/0010499 and known hereinafter as Ghosh) in

view of Beizer et al (U.S. 6,240,414 and known hereinafter as Beizer)(IDS submission

06 February 2006).

Ghosh teaches the method of claim 1 (i.e. method for asynchronous logging of

transactions)(Abstract); the computer-readable medium having computer-readable

instructions of claim 11 (i.e. Figure 1 illustrates a computer-readable medium (i.e. RAM/ROM) having

computer-readable instructions.)(Figure 1); and a computer system of claim 21 comprising a

processing unit, a memory, a persistent data store, and a plurality of data pages stored

in the memory (see Figures 1 and 2) for reading a changed data page, said method

comprising of:

storing data associated with the change in a transaction log buffer (i.e. *"ARIES*

keeps track of changes made to the database by using a log and it does write-ahead logging

(WAL).")(Section 3; see also Sections 4 and 5), but not immediately flushing the transaction log

buffer to a persistent data store (i.e. data pages storing log records are stored on a private log,

before being flushed to a disk (i.e. persistent data store).)(paragraphs [0062-0063]);

marking the changed data page in the memory (i.e. "...marking log buffers to be written

to disk in a shared log cache and private log cache.")(paragraphs [0062, 0076]) to indicate that the

transaction log buffer has yet to be flushed to the persistent data store (i.e. "Once log

records in the PLC are flushed to the shared log cache, these log records in the log buffers of the shared

log cache need to be written to disk to be made persistent." The Examiner views the term 'need' to

indicate that the transaction log buffer has yet to be flushed to the persistent data store.)(paragraph [0073]);

processing a subsequent transaction in which a durable read of at least a portion of the changed data page is to be performed, and before reading the changed data page (i.e. 'T803' is a subsequent transaction in which a durable read is performed and placed into a shared log cache (in memory).)(see Figure 4); and

if the changed data page is so marked, flushing the transaction log buffer to the persistent data store prior to the changed data page being read (i.e. *Figure 6 illustrates the changed data page, stored within the log buffer is flushed (or cleared) and written to disk (i.e. persistent data store)*)(See Figure 6, see also paragraphs [0075-0082]).

Ghosh does not explicitly teach making a change to a data page in the memory as a result of a transaction; and determining whether the changed data page is marked.

Beizer teaches making a change to a data page in the memory as a result of a transaction (i.e. Data element is changed in the local copy (i.e. memory) as a result of a transaction.)(column 7, lines 40-65); and determining whether the changed data page is marked (i.e. when a true conflict arises, it marks the changed data page in an effort to resolve the conflict) (column 7, lines 40-65);

.   It would have been obvious to a person of ordinary skill in the art at the time of Applicant's invention to modify the teachings of Ghosh with the teachings of Beizer to include making a change to a data page in the memory as a result of a transaction; and determining whether the changed data page is marked with the motivation to improve logging of transactions that are committed to a database (Ghosh, Abstract).

As per claims 2 and 12, Ghosh teaches a method further comprising: unmarking the changed data page when the transaction log buffer is flushed (i.e. when transaction log buffer is flushed, it is cleared from memory. Therefore, the changed data page becomes unmarked.)(see paragraphs [0062-0077]).

As per claims 3, 13, and 23, Ghosh teaches a method wherein flushing the transaction log buffer occurs when the changed data page is marked (the aforementioned limitation has been addressed in the rejection above.)(see paragraphs [0062-0077]).

As per claims 4, 14, and 24 Ghosh teaches a method wherein marking the changed data page comprises writing a value of a bit associated with said changed data page (see paragraphs [0062-0077]).

As per claims 5, 15, and 25, Ghosh teaches a method wherein the bit is stored in said changed data page (see paragraphs [0062-0077]).

As per claims 6, 16, and 26, Ghosh teaches a method wherein the bit is stored in a reference table (see paragraphs [0062-0077]).

As per claims 7, 17, and 27, Ghosh teaches a method wherein marking the changed data page comprises recording, in a reference location associated with said changed data page (typically, a reference location is associated with a marked log buffer, which is written in a sequence)(see paragraphs [0062-0077]), a copy of a log sequence number from said

transaction log buffer and corresponding to the change to the data page (sequencing number is included in the commit page, which corresponds to the log buggers that contain the change to a data page.)(see paragraphs [0062-0077]).

As per claims 8 and 18, Ghosh teaches a method wherein said copy of the log sequence number is stored in said changed data page (see paragraphs [0062-0077]).

As per claims 9 and 19, Ghosh teaches a method wherein said copy of the log sequence number is stored in a reference table (see paragraphs [0062-0077]).

As per claims 10, 20, and 28, Ghosh teaches a method wherein the copy of the log sequence number is used to identify a transaction in order to cause said transaction to effect the flushing of the transaction log buffer (see paragraphs [0062-0077]).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Farhan M. Syed whose telephone number is 571-272-7191. The examiner can normally be reached on 8:30AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Neveen Abel-Jalil can be reached on 571-272-4094. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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published applications may be obtained from either Private PAIR or Public PAIR.

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

/Farhan M Syed/
Examiner, Art Unit 2165